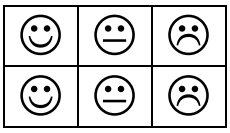
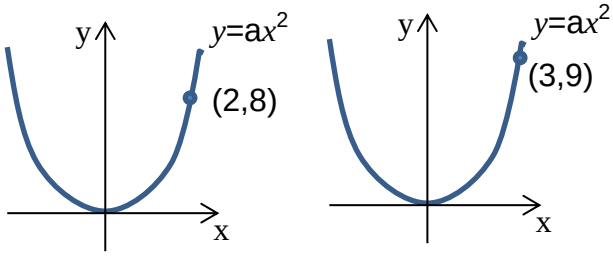
QUADRATIC FUNCTIONS

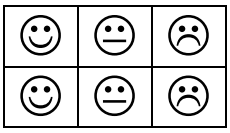
A: I can find the equation of a quadratic function from its graph



Write down the equation of each graph.



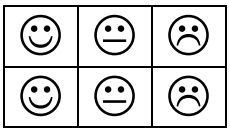
B: I can sketch a quadratic function



Sketch graphs of:-

a) $y = x^2 + 2$ b) $y = x^2 + 4$
c) $y = (x - 3)^2$ d) $y = 3x^2$
e) $y = (x + 1)^2 - 3$ f) $y = -2x^2$

C: I can identify the nature, coordinates of the turning point and the equation of the axis of symmetry of a quadratic when $y = k(x + p)^2 + q$ when k = 1 or -1

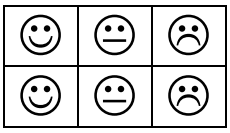


For each quadratic equation find:-

(i) The maximum or minimum turning point
(ii) The equation of the axis of symmetry.

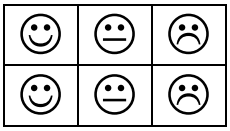
a) $y = (x - 2)^2 + 3$ b) $y = -(x + 1)^2 - 9$
c) $y = (x + 3)^2 - 4$ d) $y = -(x - 1)^2 + 2$

D: I can write a quadratic equation in the form $y = (x + p)^2 + q$ in order to identify the turning point and the equation of the axis of symmetry.



Write $y = x^2 + 4x + 5$ in the form $y = (x + p)^2 + q$ and write down its turning point and axis of symmetry.

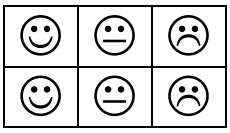
E: I can factorise and solve a quadratic equation



Solve for x:-

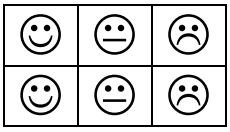
a) $x^2 - 4x = 0$ b) $4x^2 - 25 = 0$
c) $x^2 + 4x - 5 = 0$ d) $3x^2 + 7x + 2 = 0$

F: I can solve a quadratic equation graphically



Draw the graph of $y = x^2 + 2x - 3$ and use the graph to solve the equation $x^2 + 2x - 3 = 0$.

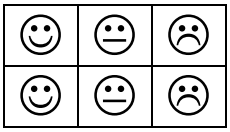
G: I can solve a quadratic equation using the quadratic formula



Solve for x, giving your answers to 2 decimal places:-

a) $x^2 + 5x + 3 = 0$
b) $3x^2 - 2x - 7 = 0$

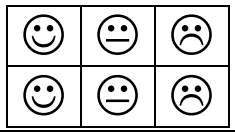
H: I can use and interpret the discriminant



Find the discriminant of each of the quadratic equations and state the nature of the roots:-

a) $x^2 + 5x + 3 = 0$ b) $x^2 - 2x + 9 = 0$
c) $x^2 + 2x + 1 = 0$

I: I can find and use the roots of a quadratic function



Find the roots and sketch the graph of $y = x^2 + 2x - 8$